

# the political economy of changing property rights: dismantling a pastoral commons

JEAN ENSMINGER—Washington University

ANDREW RUTTEN—Cornell University

Economic growth has brought dramatic changes to pastoral societies.<sup>1</sup> One of the many indirect effects of economic growth is greater sedentarization.<sup>2</sup> Sedentarization in turn increases the threat of overgrazing, rendering many common grazing systems no longer viable. Although in the past such systems were routinely changed to prevent overgrazing, pastoralists have recently had less success in restructuring their commons systems.

The roots of their failure lie in the economic and political changes brought on by economic growth. Economic growth has increased the gains to be had from dismantling the commons while also making it harder to reach agreement about how to distribute those gains. Sedentarization has increased the costs of maintaining common grazing, and growing economic diversification within pastoral societies has created groups that want very different property rights. At the same time, the replacement of local government by national government has changed the balance of power within, as well as between, groups. To illustrate the changing economics and politics of common property in pastoral societies, we examine the case of the Galole Orma of Kenya.

The Orma of northeastern Kenya are riverine pastoralists. They are an Islamic, Eastern Cushitic-speaking people of the Oromo language group. Together with the Boran and others, the Orma were part of the greater Oromo expansion of the late 1500s, which overran much of southern Ethiopia and northeastern Kenya. The current homeland of the Orma is the Tana River district in Kenya, on the west bank of the Tana River, with particularly heavy concentration in the Tana River delta and some settlements in the Lamu district to the east of the Tana. The Orma depend largely on cattle, with lesser numbers of small stock (sheep and goats) and virtually no camels. They increasingly supplement their pastoral production with farming along the flood plains of the Tana River and the many seasonal rivers that cross-cut the territory from west to east.

The Galole Orma inhabit the middle portion of the Tana River district along the banks of the east-west Galole River, which flows into the Tana at Hola. In 1979 39 percent of Galole households were settled in villages with shops and were strongly integrated into the market economy as commercial beef producers. The other 61 percent were less involved in the market economy and were to some extent nomadic. The nontown households were generally more nearly self-

---

*Economic growth has led to the breakdown of systems of common grazing in many African pastoral societies. These systems continue to fail because economic differentiation and diversification prevent pastoralists from agreeing on a replacement system. We develop a new institutional model of this process. Our analysis focuses on changes in the economics and politics of pastoral property rights and on public attitudes about the distribution of the costs and benefits of those changes. We apply our model to the case of the Galole Orma of Kenya. [new institutional economics, political economy, commons, pastoralism, Africa, property rights]*

---

sufficient in meeting their subsistence needs, which for them still consisted primarily of milk and stock products. Strikingly, by 1987 63 percent of the Galole had settled in market towns. While we often think of sedentarization as being synonymous with a transition to farming, this was not the case with the Orma. Although floodplain agriculture along the seasonal Galole River continues to increase, it is quite unreliable, and virtually all households are still practicing pastoralists.

During this period, Orma income, like that of many Kenyans, has grown. Among African countries, Kenya has had a relatively high rate of economic growth. From 1965 to 1980 growth averaged 6.4 percent per year, while from 1980 to 1987 it averaged 3.8 percent per year (World Bank 1989). The Orma shared in this, as reflected in the 37 percent growth in their real per capita income between 1980 and 1987 (Ensminger *In press*), despite livestock losses of 70 percent in the 1984 drought.

The Orma illustrate the influence of growth on property rights in pastoral economies. The Orma, like most African pastoralists, developed a complex system of property rights. Land tenure consisted of shared grazing open to the entire ethnic group. Until recent times overgrazing was prevented by territorial expansion and control over access to water. Unlike grazing land, wells, which were redug seasonally at select locations in dry riverbeds, were owned not in common but by the person who had first dug the spot and his patrilineal descendants. As people began to settle, these options were no longer effective, and the Orma had to develop new methods of preventing the overuse of land, which they did by imposing restrictions on access to the commons near sedentary villages. These restrictions functioned quite effectively in the absence of third-party enforcement until the mid-1980s. But by the mid-1980s the broad support for the restrictions had begun to break down, owing to the diverging interests of some commercially oriented sedentary livestock producers and others (cf. Johnson and Libecap 1982; Libecap 1989). This trend was compounded by other groups' pressure on Orma land. The relatively sedentary producers have been aided by their ability to use the national government's policies in favor of sedentarization to enforce restrictive property rights against the nomadic, subsistence-oriented producers. The result has been a gradual dismantling of the commons to the benefit of the sedentary producers.

The framework that we use to analyze these changes is derived from the new institutional economics (Eggertsson 1990; North 1981, 1990), a perspective premised on the assumption that institutions influence choices, that people realize this, and that people try to structure institutions toward their own ends (cf. Bates 1981, 1989).<sup>3</sup> While some institutions exist primarily in order to channel behavior according to religious and ideological norms, here we are concerned with more explicitly economic phenomena. From this perspective, the analysis of the choice of institutions is a three-step process. The first step is to analyze different possible institutions and determine how they distribute costs and benefits across society. The second is to assess current ideologies concerning the legitimate distribution of costs and benefits. Together these determine who will want which institutions. The third step is to consider the politics of institutions, or the way in which the political system treats the desires of the different groups involved. Politics determines how the various groups control the outcomes.<sup>4</sup>

The new institutionalism should appeal to anthropologists for several reasons.<sup>5</sup> Not only do the new institutionalists examine subjects of interest to anthropologists, ranging from the evolution of cooperation (Axelrod 1984; Schofield 1986; Taylor 1982, 1987) to the conditions under which markets will evolve (North 1977), but more important, while they retain the general economic approach to human behavior, they abandon many of the assumptions that have bothered anthropologists: costless transacting, perfect rationality and information, and narrow economic self-interest (Goldberg 1981:378). This leads them to depart significantly from neo-classical analyses by emphasizing the significance of institutions and ideology (Higgs 1987, 1989; Hinich and Munger *In press a*, *In press b*; North 1981, 1990; Siegenthaler 1989). The resulting focus on the details of institutional structure gives much of their work a distinctly an-

thropological flavor (Cheung 1973; Ellickson 1986; Ostrom 1990). Of course, it does not yet (and may never) provide anything like a general theory of social institutions. However, it can already add much to our understanding of the recent history of pastoral property rights in Africa.

The conclusions that we reach using this approach cut across existing scholarly boundaries. Like many economists and proponents of the “tragedy of the commons” theory (Hardin 1968; Hardin and Baden 1977), we believe that the viability of pastoral societies is related to the incentives provided by their systems of property rights and politics. Tragedy theorists believe that common ownership of land coupled with private ownership of livestock and the lack of a strong state provides incentives to degrade the environment. Unlike those scholars, however, we do not see common property as necessarily problematic in pastoral societies. In fact, we believe that the new institutional economics shows there is often a sound economic explanation for the commons. Like many anthropologists (McCay and Acheson 1987), we believe that the record shows too many successful common property systems to allow for the tragedy analysis. Yet unlike some anthropologists (Peters 1987), we do not believe that this is grounds for rejecting the notion of rational choice. Rather, we believe that economists and tragedy theorists are wrong because they have failed to create proper models of pastoral common property systems. Their mistake simply proves the new institutionalists’ claim that neoclassical economists fail to consider institutions adequately. Finally, unlike many of the property rights analysts (Demsetz 1967; cf. Williamson 1985 on contracts), we make no claims about the optimality of property rights or about their compatibility with long-run economic growth (cf. Binger and Hoffman 1989; North 1981, 1990). Indeed, we argue that the role of politics makes such claims problematic. Political choices depend on the political structure as well as on what people want (Bates 1981); how choices are made can determine which choices are made (Riker 1980, 1986). This is precisely why institutional change does not necessarily enhance economic performance.

There are obvious similarities between our conclusions and those of neo-Marxists and other contemporary analysts of the state (see, for example, Evans, Rueschemeyer, and Skocpol 1985).<sup>6</sup> Like them we eschew the classical Marxist notion of class as an analytic category and focus instead on conflict *among groups within classes*. We also agree with them that the state cannot be viewed simply as a passive agent of class domination. Instead, we see the state as both an autonomous actor and an entity subject to capture by groups, including the various factions within any class.

But in spite of these similarities there are real differences in our approaches. Neo-Marxists begin with groups (although not necessarily the classes of Marx and Engels) and analyze their interactions;<sup>7</sup> we begin with individuals (albeit individuals who are embedded in a specific social and economic context) and work up. Thus, while we acknowledge the importance of groups, we believe that it is more fruitful not to take them as given. Instead, we explicitly consider the conditions under which individuals will come together as members of groups and the conditions under which they will not do so (or will cease participating in groups they have formed).<sup>8</sup> For example, in the Galole case we find that preferences for particular property rights are based not on simple class interests so much as on economic interests and kin alliances.

Our approach is especially useful for analyzing the path of institutional change. For example, it allows us to explain why common property systems worked so well in the past but are giving way to alternatives. A new institutional analysis goes a long way toward explaining the nature and timing of institutional changes. These changes reflect changes in transaction costs, relative prices, and burden sharing in enforcement. Our approach does not, however, account for preferences.

### **property rights, politics, and economic growth**

Property rights, politics, and economic growth are inextricably intertwined. Much has been made of the role of property rights, rules over the control of resources, in determining the path

of economic growth. Unfortunately, little has been made of the role of economic growth in determining the long-run viability and adaptability of property rights. Indeed, it is often assumed that property rights automatically adjust to changing economic circumstances (Netting 1982; North and Thomas 1973). The advantages to such adjustments are obvious, but the adjustments are also obviously not automatic. To understand why they are not, we must examine how economic growth changes the effectiveness and adaptability of property rights.

Effective property rights are essential to the long-run viability and success of a society. They allow people to take advantage of the gains from cooperation. When property rights are not completely specified or enforced, people are giving up (sometimes obvious) gains from cooperation. Despite these losses, incomplete property rights need not be irrational, paradoxical, or imperfect. There are good reasons why property rights are not perfectly specified or enforced (Barzel 1989). Most important, it is costly to specify, monitor, and enforce them. Goods have many characteristics; to be complete, rights would have to be established and enforced over every valuable characteristic of every good. However, in the real world it is costly not only to determine which goods are valuable and should be protected but also to police compliance and punish offenders. Because of these costs, which economists call transaction costs, property rights are never completely specified and enforced, nor would it be cost-effective to do so.<sup>9</sup> Therefore, all other things being equal, goods and characteristics that are not controlled will be substituted for those that are.

Since property rights must be tailored to particular economic circumstances, changes in circumstances will change the effectiveness of particular rights. By increasing the use of goods over which there are no property rights, growth can increase the cost of not having property rights. Perhaps the best example of this is the air and water pollution around cities; until recently, the levels of pollution were so low that property rights were not needed. Growth can also affect property rights that exist and are enforced. If growth raises the benefits from cheating, either by enhancing the value of the good or by lowering the chance of getting caught, it may promote cheating. Much of the recent increase in ivory poaching, for example, has been related to ivory's increasing value. Finally, the strengthening of institutions such as courts and of infrastructure such as roads that often accompanies growth can change the transaction costs incurred in enforcing property rights. Thus, where a lack of roads once made it difficult to enforce property rights in land, a better infrastructure may open privatization as an alternative to common tenure.

So far, we have ignored the question of what property rights people want. Economists usually assume that people will want those property rights that maximize net output. Otherwise, the reasoning goes, people will be foregoing gains; the prospect of capturing these gains will provide a powerful incentive for the restructuring of property rights. But this argument ignores the role of ideology and politics in determining property rights.

Ideology shapes preferences in property rights by making people consider more than their own narrow gains when evaluating various systems of rights. In particular, people may be interested in ensuring that economic rewards are distributed fairly within society. Economists admit that some people are motivated by more than their own narrow self-interest, but they deny that these people affect the structure of property rights. They argue that when even a few people are selfish, competition forces everyone to be selfish by rewarding selfishness. Thus, competition gives everyone a powerful incentive to ignore such factors as fairness.<sup>10</sup> While this reasoning may apply to property rights, such as contracts, that are developed in competitive markets, many important property rights are not subject only to market pressures.<sup>11</sup> In some settings, ideological considerations may be salient.

Ideology is likely to be particularly important when it comes to those property rights that are determined politically. Indeed, there is good reason to believe that politics does not simply mimic the market, even when people are narrowly self-interested. To the extent that this is the

case, political considerations will affect the choice of property rights. The result may be property rights that decrease economic performance.

Politics is the process by which the desires of the members of the group are turned into collective choices. The political structure determines how much influence each member will have over any particular outcome. Political problems occur only if individuals disagree over policy; when everyone agrees, the collective choice is obvious. The changing of property rights is likely to cause extensive disagreement, for property rights are never neutral in their economic effects, and changing them creates winners and losers. As long as nobody wants to be a loser, people will disagree over which property rights ought to be changed or chosen.

Unfortunately, extensive disagreement complicates the analysis of collective decisions. Indeed, formal investigations of political decisions have found that such decisions depend crucially on the political structure: for the same configuration of individual wants, it is usually possible to get many different decisions by changing the rules used to make decisions (Riker 1980). Radical changes in outcomes are caused not only by such changes in the political system as the replacement of a monarchy by a democracy, but also by keeping the system the same but making relatively minor changes in procedure, such as reordering the sequence in which the issues are voted on (Riker 1986). Clearly, then, analysis of the details of the institutional structure, whether formal or informal, is crucial to understanding politics.

In a variety of ways, economic growth decreases the ability of the political system to resolve conflicts over property rights. Increasing specialization and division of labor bring with them increasing economic differentiation, with each group potentially wanting the property rights that favor them. Growth also creates winners and losers. Since changing from a losing to a winning economic strategy may itself be costly, losers have an incentive to turn to politics to reverse their losses more cheaply. Growth changes the political structure as well. Especially in developing nations, national government tends to expand at the expense of local government. With improvements in transportation and communication, national governments have been able to enlarge the scope of their authority. The coalitions that control national politics are often very different from those controlling local governments.

What are we to conclude from this? The complexity of the world makes it hard to design property rights that promote economic performance while fulfilling socially desirable dictates regarding distribution. Because they are costly to negotiate, monitor, and enforce, property rights will not be complete, but will focus on a few valued characteristics where compliance is easily enforced. Such schemes are particularly sensitive to changes in the relative cost of not complying with the restrictions on those characteristics. When property rights, for whatever reason, result in large economic losses, the losses create an incentive to change the rights. Whether and how the rights are changed will depend not only on the economic incentives but also on the ideological perspectives and the political structure. Since there is no guarantee that ideology or political structures will themselves depend primarily on economic considerations, the resulting property rights may decrease economic performance.

### **the political economy of pastoralism**

The political economy of pastoral societies is distinguished by a reliance on common property in land, by the individual ownership of livestock, and by the lack of a strong state. Many scholars see these features as the source of pastoralists' recent problems. Given each individual's desire to build a larger herd, common property, by failing to provide incentives to conserve land, leads to the tragedy of the commons (Hardin 1968), or the destructive overuse of land. According to tragedy theorists, the lack of a strong state limits the ability of pastoral societies to enforce any collective decisions, and it thus hinders the development of more effective property rights. Neither conclusion is warranted. A deeper analysis shows that these fea-

tures do not necessarily have such effects. Indeed, when correctly analyzed, the pastoral common property system appears to be an effective response to economic circumstances.

The benefits of common property in grazing land come from the peculiar ecology of arid regions in Africa. These regions are characterized by erratic and unevenly distributed rainfall, a climatic condition ensuring that a small area of land cannot support livestock over the long run. Moreover, common property obviates the need to monitor and enforce private rights to the large parcels of land necessitated by ecology. These benefits do not explain how traditional systems avoided the tragedy or why some of them are now succumbing to it. We need a model of common property that explains when common property will be tragic and when it will not (cf. Barzel 1989).

The key to such a model is a more comprehensive characterization of the pastoral production process. In the tragedy model, the only inputs into the production of livestock are livestock and land. When land is free, pastoralists have an incentive to overuse the land by increasing the number of livestock they put on it. In fact, land is not the only factor whose limited availability constrains production. Raising real livestock requires several inputs besides land, notably water and labor. As a result, pastoralists do not necessarily have an incentive to use more and more land simply because it is free. Generally, they will only do so if the expected value (including insurance) of doing so exceeds the cost. While the marginal cost of land is almost nothing, the marginal value may be even lower. Whether it is depends on the cost of the other inputs needed to produce livestock.

Stocking levels will depend in part on the cost to the pastoralist of each of the inputs. Moreover, the marginal cost of inputs depends on property rights. If property rights can be established over one of the other inputs, then the cost of using it can be raised enough to make overusing unowned inputs such as land uneconomical. Indeed, it may be cheaper to establish and enforce property rights over the other inputs than over land. When this is so, then it may be economically sensible to structure property rights so that land is free.

Such protective mechanisms are found in most pastoral areas. Among any pastoral group, several different sorts of rights in property are likely to coexist. Some resources belong to individuals, others to lineages, and still others to everyone; some are usufruct, some leasehold, and some freehold. In addition, most pastoralists have rules that govern the use of resources during emergencies, such as droughts or epidemics. Taken together, these factors make it seem unlikely that the tragedy model, based on oversimplified assumptions about individual freehold rights in livestock and common rights in land, applies to real pastoral systems.

Not surprisingly, water is the subject of many complex rights. Without water, even free land is worthless to a pastoralist. In arid regions, access to dry-season water is easily controlled, since there are often only a limited number of sources. In these areas, dry-season water sources are often not owned in common (see Gulliver 1972:37 for the Turkana; Helland 1980 for the Boran; Lewis 1961:34 for the Somali). And some herders control inputs besides water. For example, in those areas where the livestock of different owners are allowed to mingle, owners need to be allowed access to the annual roundup; in areas where production is commercialized, access to the market is controlled (Dennen 1976).

The recent history of Botswana provides striking evidence of the efficacy of ancillary controls (Hitchcock 1985; Peters 1984). In Botswana, development planners noted that a lack of water limited the number of cattle. To solve this problem, they began a program of sinking boreholes. As planned, the program dramatically increased the amount of water available to pastoralists and led to an increase in the number of cattle they raised. It also had the unplanned effect of leading to a destructive overuse of land. Yet this was the predictable consequence of relaxing the constraint—the limited access to water—that was keeping the value of land low. Thus, the failure of the borehole program was an example not of the tragedy of the commons but of the tragedy of making common what had once been private property.<sup>12</sup>

Many precolonial African pastoral societies were distinguished not only by the holding of common property in land but also by statelessness. Most pastoral groups had some body that made collective decisions, such as a council of elders; however, few had a central body to enforce those decisions. Like common property in land, this system was economically sensible. However, it would appear to have left pastoral polities with no power to enforce collective decisions. Yet innumerable anthropological studies of stateless societies show that statelessness does not necessarily imply disorder. Statelessness means not the absence of enforcement but the decentralization (or privatization) of enforcement (Eggertsson 1990:ch. 9; Taylor 1982). Instead of relying on third-party specialists to enforce collective agreements, the citizens of stateless societies must rely on one another.

Decentralized private enforcement will not work unless ordinary citizens want to enforce collective decisions.<sup>13</sup> They must also have the means to do so, and they must know who has broken the rules and thus must be punished. Recent work in game theory suggests that these conditions can be met when people deal with one another repeatedly (Axelrod 1984; Taylor 1982, 1987): when people play a game over and over, they can punish offenders by refusing to deal with them in the future; moreover, in small groups it is relatively easy to determine who cheats and who does not (Hechter 1987).

Perhaps the most important consequence of decentralized enforcement is that it limits the range of possible political decisions. Anyone who is not happy with a collective choice can refuse to enforce it (Bailey 1965), and as a result, choices that favor one part of the collectivity at the expense of another without acceptable compensation are unenforceable. Thus, the need for broad support may limit the degree of politically induced inequality. This need not, as some theorists have argued (Taylor 1982), imply equality. After all, people may accept unequal outcomes as long as they are the result of fair play within accepted rules. However, it does seem unlikely that people will accept inequality that is based on manipulation of the political system. Thus, *ceteris paribus*, decentralization implies that inequalities are less likely to be based on political decisions than on economic or ideological motivations.

### **economic growth and the emergence of conflict**

Growth has dramatically altered pastoral economies by making commercial production more economically feasible and rewarding. In many pastoral societies this has increased diversity, with some people becoming commercial producers, traders, farmers, and wage laborers, while others continue to focus on subsistence pastoral production. As a result, there is now less agreement about what forms of property rights are appropriate. A growing share of pastoral output is being sold on the market, not kept for domestic consumption. The needs of commercial beef producers are very different from those of subsistence-oriented nomads. Therefore, the two groups want very different property rights systems.

The emergence of a commercial sector can be traced directly to the changes associated with economic growth, including an increase in the relative and absolute size of the urban population. Since city dwellers cannot grow their own food, their food needs must be met by the commercial production of those who remain in agriculture. Growth has also resulted in improvements in infrastructure (roads, telecommunications, public transport, government, and banking facilities), even in pastoral areas. Moreover, the spread of stores, along with the increased use of money and credit, allows pastoralists to use the proceeds from their sales. All in all, these changes make it economical for some pastoralists to specialize in producing for national and international markets.

Nevertheless, the pastoralists in any given society are not all equally interested in producing for the market. Those who have the appropriate access to stock, skill, and labor, and who prefer decentralized political authority, may still migrate and avoid dependence on the market for

subsistence foodstuffs as much as possible. The factors related to settlement and involvement in commerce include a facility with the language of trade, kin relations with traders or other well-off sedentarists, access to credit, job opportunities, the availability of arable riverine land, a household age structure that makes movement difficult, infirmities that make access to health facilities important, a desire for education, and a fear of losing land that is not permanently settled. The fact that different populations have very different land tenure needs makes it increasingly difficult to reach agreement over property rights.<sup>14</sup>

## **economic growth and the resolution of conflict**

In addition to heightening conflicts over collective decisions, growth has changed the methods of resolving those conflicts. The methods first began to change with the appearance of the modern state in nomadic areas. Over the past 50 years, the national governments of Africa have exercised increasing sovereignty over nomadic areas (cf. Ensminger 1990). The extent to which they exercise control varies greatly, but in most areas there is now an effective, if limited, national presence, a presence that has resulted in several distinct changes, each with important implications for the resolution of conflict. In most areas the overall effect has been to bias collective decisions toward policies that favor commercial producers at the expense of subsistence producers.

One of the most important changes has been the development of a new method of enforcing political decisions. We argued above that the lack of third-party enforcement in stateless societies imposed limits on the substantive political decisions that could be made. These limits disappeared when the state replaced the members of the group as the enforcer of collective decisions. With a third party enforcing collective decisions, the group is no longer forced to consider only decisions that can be agreed upon by fairly broad consensus and privately enforced. As a result, a smaller group can dominate decision making without the concessions previously necessary to acquire broad support.

Having said this, however, we must note that even modern states do not rule by formal constraints and third-party enforcement alone. In fact, as North (1990) argues, much enforcement of contracts and property rights comes from informal constraints. In many contexts people will not break the law even when they know they can get away with it, for they believe in its legitimacy and justice. Thus, the degree of ideological support for particular property rights and other institutions will greatly affect compliance and, therefore, economic performance. It is hence often in the interest of those attempting to dominate decision making to act cautiously and bring others around to their perspective even when they have the government's police forces at their disposal. A loss of ideological support cannot be entirely compensated for by third-party enforcement.

The replacement of local by national governments has other implications. One is to increase the importance of national-level politics. Those who determine what policies the state enforces will be able to get decisions that favor them. National government also opens the door for the state to decide policy without considering the desires of local residents. However, for the same reason that a minority may not wish to substitute force for ideological legitimacy by imposing a totally self-interested policy, so the state may acquiesce in some degree to local interests. Another consequence of accepting state government is the recognition of the state's monopoly over legitimate force. This has in some cases diminished the pastoralists' ability to protect grazing land from incursions by outsiders.

Acceptance of the national government also increases the vulnerability to its urban bias (Lipton 1977), resulting in the passage of a variety of laws that are inconsistent with the continued viability of nomadic and subsistence-oriented households. Some laws, such as those establishing game preserves, irrigation schemes, and private ranches, may benefit outsiders at the ex-



pense of local groups. Others, however, favor some members of the local group at the expense of others; for example, compulsory schooling laws penalize nomads more than sedentary producers, and taxes serve primarily to fund social services used disproportionately by the sedentarists.

So far, our discussion of the process of changing property rights has been rather abstract. To make it more concrete and to provide more detailed evidence, we turn to a single case, that of the Galole Orma of northeastern Kenya.<sup>15</sup> The history of property rights among the Orma clearly demonstrates their relation to growth and politics.

### **the historical Orma solution to the commons problem**

Although the limited historical accounts of the Orma for the last few centuries provide few precise details of land tenure practices, there is every reason to believe that land was held in common and stock owned individually, as was the case among most East African pastoral groups until recent decades. Orma lineage rights over water were—and are—similar to those found among the Boran (Helland 1980:65), from whom the Orma separated several centuries ago.

From the earliest accounts, it appears that the Orma relied on military expansion to reduce the overcrowding of commonly held grazing land. In the consequent absence of shortage, no commons problem existed. The Orma were of course not alone among pastoralists in using such a strategy. Among others, the Somali and the Maasai were known to be expanding their territories at the time of the British pacification efforts in the late 19th century. In fact, these three groups eventually met in military adventures over Orma territory.

Until the 1860s, the Orma were exceptionally successful militarily. Originating in Ethiopia, the Oromo began expansion in the early 1500s and made it as far as northern Tanzania in less than a century. The Orma's fierce military posture also discouraged foreigners, including the usually aggressive Arab coastal traders, from penetrating their territory (Lobo 1984:66; New 1873:161). However, beginning in the 1850s, the Maasai and the Somali, also in an expansionary posture, made serious attacks upon the Orma from the south and the north, respectively.

As long as the Orma were militarily successful, they had little need to develop mechanisms for regulating grazing. Moreover, the defeats of the mid-19th century so decimated both the Orma and their stock that repopulation, even of their much reduced territory, took a long time. Therefore, pressure on the commons was not an issue in the first half of this century. In the 1960s, however, the Orma began to face problems of land pressure. These problems took the form of both external encroachment by other ethnic groups and internal disagreement over changes in property rights as a consequence of economic growth.

### **external encroachment on Orma territory**

The nationalization of government has increased the encroachment of outsiders on Orma land. Part of this increase comes from the activities of the national government itself. A variety of development projects are land intensive, and in Kenya, as elsewhere, pastoral lands are a natural source of land for these projects. In addition, the national government prohibits the Orma from defending their territory militarily. As a result, the Orma are more and more susceptible to encroachment, especially by Somali pastoralists.

The Orma have lost large amounts of territory to development projects, especially irrigation schemes along the Tana River (including Hola, Bura, and the Tana Delta Rice Project), game reserves (including Tsavo, the Tana River Primate Reserve, and the Kitui Reserve), non-Orma commercial ranches (especially Galana), and group and cooperative ranches. The Orma have

been essentially powerless to stop any of the encroachment upon their territory for agriculture, irrigation, commercial ranches, or game reserves. The government considers these land uses more economically productive than pastoralism and has therefore given them national priority in this and other parts of Kenya. Even if the Orma had powerful representatives in Nairobi, it is unlikely that they would be successful in stopping these encroachments.

The Orma have had relatively more success in drawing the attention of the government to encroachment by other pastoral groups. In particular, they have taken advantage of the hostility between Kenya and Somalia to push for the removal of the Somali from their territory. For example, in 1980 there was a severe influx of marauding bandits (commonly referred to as *shiita*) who were believed to be Somali.<sup>16</sup> The Orma used the situation to attempt to rid their territory of all foreign ethnic groups: Somali, Wardei, and even Boran. Accusations that all of these groups were harboring foreign bandits in their settlements were rampant at the time. Following attacks by bandits on Orma villages, the Orma made retaliatory raids on Somali settlements, raids constituting the equivalent of ethnic warfare. Ultimately, however, the Orma were no military match for the Somali. Consequently, when the Orma were inundated with large numbers of Degodia Somali during the drought in 1980, they had no recourse but to turn to the government for help in ordering the outsiders to leave their territory. The government of Kenya did take action on their behalf, permitting the Orma chief, under the authority of the "chief's act," to order any foreign stock out of his location (the subunit of a district) and to refuse any other livestock permission to cross into it.

Earlier, the Orma had also attempted to force the Somali out by making it difficult for them to get water. The Orma complained that the Somali and Wardei residing in the northern part of Orma territory at this time refused to acknowledge Orma ownership of wells and merely used (and destroyed) them at will. When chastised for such behavior, the Somali responded that the Orma did not own the wells, since "only God can own a well." The Somali were probably making a strained effort to appeal to a common institutional structure in the form of Islam, which is shared by all of the ethnic groups involved. This state of affairs represented the breakdown of the Orma's primary institutions for regulating common pasture: military action and the ownership of wells. At this point the Orma had little choice but to resort to a higher authority, as the Wardei and Somali made it very clear that they did not consider themselves bound by Orma institutions.

The influx of the Somali and Wardei had several consequences for the Orma system of property rights. More than ever before, the Orma realized the vulnerability of their situation and began taking steps to secure their property. This they did by cultivating the sentiment of national Kenyan officials against the Somali. They also took steps to guard their territorial claims more directly. For example, in one remote nomadic area far from any shops, villagers were reported to be afraid to migrate for fear that if they vacated the area the Somali would move in. Thus, people began to settle in part to secure their rights to land. This particular crisis was eventually resolved when the rains came at the end of 1980. The Somali did temporarily leave Galole territory, but the Orma were much changed by the experience. Furthermore, the Somali returned in even larger numbers during the drought of the mid-1980s.

The external threats to Orma property rights are potentially more costly to the Orma than the internal threat. Consequently, we should not ignore the effect of the external threat when we consider the internal dynamics of change that ensued. In evaluating the relative effects of internal and external pressures on the commons, one must bear in mind that the dismantling of the commons began in the early 1960s, long before the recent wave of Somali encroachment. However, while the processes of economic growth and Orma settlement would ultimately have precipitated a change in property rights on their own, the Somali crisis may have aided in overcoming ideological resistance to the system that resulted. With this in mind, we turn now to the internal situation, which may cast more light on changing property rights in other contexts.

## internal pressure on property rights

The Galole Orma began to sedentarize in the Wayu area in the late 1940s and early 1950s. By the 1950s, they had a small shop, school, dispensary, mosque, chief's office, and road to the district headquarters. The process was at first extremely gradual and the area so naturally fertile that a reasonably good-sized population could remain there through wet and dry seasons with few detrimental consequences for either the ecology or the well-being of the livestock. No alteration in the common tenure system was needed at this time. By the 1960s, however, the population was great enough that the Orma were beginning to feel some pressure on the local resources.

In the case of the Galole Orma, sedentarization is not synonymous with a transition to agricultural production. While the chief did experiment with large-scale commercial agriculture in the 1960s, wide-scale farming did not develop until the 1970s. Even today it is at best an opportunistic strategy, as it depends on river flooding, which yields reasonable harvests only one season in four, or roughly every other year.

Settling is incompatible with East African pastoralism because rainfall tends to be highly localized; pastoralists need to be as mobile as possible in order to pursue the rains and grazing and to match population density with resource availability. The wealthy sedentary households solve this problem by keeping only small milking herds in the village and hiring herders to take the majority of their stock to remote and highly mobile cattle camps.

The Orma were attracted to settlement for a variety of reasons. For those with commercial interests, settlement greatly facilitated access to information, transportation, and buyers and sellers. Others were attracted by some combination of the school, mosque, dispensary, shops, availability of arable land by the river, presence of wealthy kin, opportunities for employment, and relative ease of a settled lifestyle. Whatever their reasons for settling, however, all households were forced to depend on purchased foodstuffs for a great deal of their subsistence, as access to milk (the dietary mainstay) was greatly reduced with sedentarization; in other words, everyone was forced into a highly commercial production strategy—they sold stock and purchased grain.

As stocking pressure increased over the entire territory, there was nothing to stop the nomads from using the lush grazing in the settled area, thus leaving insufficient grazing for the sedentarists' milking herds during the dry season. Early in the 1960s, the sedentary elders, including the resident government chief, proclaimed that a small area around the permanent village of Wayu was off-limits for wet-season grazing to any stock but that owned by the local villagers. The Orma term for the area was *laf sera*, or roughly, "prohibited land" (cf. Behnke 1985).

In the 1960s and 1970s the restricted area was not large enough to represent a serious threat to the nomads. Conflict was relatively easily avoided, and incursions, although they definitely occurred, were not serious enough to jeopardize the resource base of the settled households. But over the years the settled villagers gradually extended the restrictions on this grazing area by limiting the period recognized as the "dry season" and by enlarging the size of the territory to include all grazing lands within a day's walk from the center in every direction. By 1985 the restricted area was substantial and was out of bounds to outsiders year round. As always, nomads still had the option of settling at any time and thus enjoying access to the restricted grazing, but there were costs. All settlers were obliged to send at least some of their children to school and to contribute to *harambee* (self-help) fundraising, the primary means of taxation.

Significantly, by 1985 the new property rights system was being enforced largely by the state. Up to the early 1980s, trespassers were reported to the elders by herdboys and such sanctions as were employed worked through traditional Orma institutions controlled by the elders. The chief (a state civil servant) never arrested herders for trespassing on the restricted grazing area. By the mid-1980s, however, the chief was commonly using his police to arrest both Orma and Somali encroachers. Typically, the offenders were detained briefly and fined. While the ma-

jority of the settled Orma, rich and poor alike, supported the chief in this policy, the Orma nomads clearly did not, and some settled households were sympathetic to the nomads' cause. In order to understand the breakdown of the elders' ability to enforce the restricted grazing and thus the need for third-party enforcement by the state, we must analyze the increasing differentiation that occurred among the Orma during the 1970s and 1980s. Much of the differentiation can be related to economic growth and the diverse economic interests that resulted.

Over the 1970s and 1980s there were significant changes in relative prices, changes favoring the commercial production of livestock and increasing the value of the land around permanent settlements. For example, between 1980 and 1987 the profits from livestock production on Orma land rose 116 percent, while overall inflation was 93 percent (Ensminger 1991, In press). Since sedentary households have better access to transportation, markets, and price information, increased commercialization tends to result in increased sedentarization. As the sedentary population grew, so too did the value of land, in turn promoting the demand for restrictions on land around the permanent settlements.

Changes in the relative costs of maintaining distant cattle camps also fostered the sedentarists' demand for land. As the demand for education increases, the pool of young men available for work decreases, raising not only the direct cost of labor but the transaction costs (here agency costs) as well. As the labor of sons is replaced by that of hired herders in the remote cattle camps, the quality of herding declines, leading to significant losses. Herd owners especially complained that this was a problem during the 1984 drought and accounted for much of the 70 percent livestock loss at that time. Such labor problems are less severe among hired herders living in the settled villages, where they are under the watchful eye of the herd owner on a daily basis. Thus, in 1987 the sedentarists began trying to expand the restricted areas around the settled villages to accommodate their cattle camps.

The alienation of Orma land to irrigation schemes, game reserves, and a variety of ranches has also drastically reduced the Orma's access to dry-season water sources such as the Tana River. As the access to alternative water sources declines, the relative value of land around the sedentary villages, which have their own water supplies, increases. Finally, the social and economic services available in the sedentary villages all enhance the relative benefits of settlement and thus the value of land in the area.

These changes in relative prices have widened the gap in economic interests between the sedentary and the nomadic herders and have possibly persuaded some sedentarists to overcome their ideological misgivings about restricting access to the commons. Over the years the settlers used two forms of ideological reasoning to justify more restrictive property rights. Initially, the Orma appealed to custom, which gives preference to the needs of milk herds over those of *ureni*, or cattle camps (cf. Hogg 1990 for the Boran). Conceivably, even the nomads could have accepted this, especially given that the costs to them were initially small. Later, the sedentarists argued that they had sedentarized in order to send their children to school and that therefore they had to prohibit the nomadic herders (who could go elsewhere) from using the only resources which were within the reach of the villagers' herds. This explanation appealed to the national "ideology," as compulsory primary schooling was the law (albeit not seriously enforced) as of the late 1970s. The sedentarists knew, therefore, that by so arguing their case they could claim the backing of the national government.

By 1987 the situation had gone so far that neither of these claims to ideological legitimacy was tenable. First of all, for some years the children of many households excluded from the restricted grazing had already been going to school. Second, in 1987 some wealthy commercial households were lobbying for an extension of the restricted grazing zone to encompass an area large enough to accommodate their cattle camps in the dry season. In part, they proposed this as the most effective strategy to counter the Somali threat to their territory. Together with similar initiatives in other villages along the Galole River, this movement threatened to create a nearly continuous restricted zone east to west across the entire Orma frontier. Such a change

would probably force all Galole nomads to sedentarize. While the proposal was still in the negotiation phase in late 1987, the fact that it was even seriously considered by a substantial number of sedentarists is highly significant, indicating either that the norms regarding the acceptable distribution of costs and benefits across society have changed considerably over the years or that the wealthy sedentary households feel confident that their will can prevail in the face of significant ideological objection. The latter is possible only under conditions of third-party enforcement, such as now prevail.

The growing gap between the subsistence-oriented nomads and the sedentary commercial pastoralists, rich and poor alike, is not the only form of economic differentiation that has rent Orma society. Had it been the only one, the decentralized enforcement sanctioned by the sedentary elders might still be working. However, within the sedentary community serious cleavages developed, some clearly economic and others less clearly so. Most notably, a number of wealthy sedentary households, many of whom settled only recently as a consequence of the 1984 drought, had close family members who were nomads and whose interests they supported. Many families practiced a divided strategy, with part of the household sedentarized and part nomadic, and thus had mixed interests. Moreover, a limited number of wealthy shopkeepers and poor tea-kiosk owners did considerable trade with both the nomads and the Somali and supported them politically. Clearly, the lines of conflict in this dispute were not based on class interests so much as on economic interests and kin loyalties.

For most Orma, the external threat to grazing posed by the Somali encroachment precipitated a crisis that may have greatly enhanced the sedentarists' ability to overcome ideological resistance to changing property rights. While some change would have been necessary even in the absence of the external threat, it might not have come as fast nor have taken the form that it did, had historical circumstances differed.

Enforcement by the state offered the advantage of harsher sanctions (and thus greater protection for the now more valuable land) while obviating the need for broad-based political support of the new property rights. In other words, it is now possible for a smaller group to implement institutional changes that favor them. The composition of this group changes over time, in part as a response to changes in relative prices.

## **conclusions**

The relation between economic growth and property rights is complicated. Growth changes the costs and benefits of systems of property rights and the distribution of those costs and benefits. However, property rights are not always restructured only in response to purely economic considerations; the long-run viability and desirability of certain property rights also reflect ideology and politics. Ideology, which includes notions about fairness and justice, influences the assessment of systems of rights. In addition, perceptions of fairness affect people's willingness to comply with any particular system and thus affect the transaction costs of that system. Which property rights are actually chosen depends on how rights are chosen as well as on which rights are desired. People choose many, if not most, important property rights collectively, using a combination of formal and informal political institutions. The extent to which different groups can affect the choice of property rights depends on the political institutions used to make choices.

The case of the Orma illustrates the interaction of economics, ideology, and politics in the evolution of property rights. The timing of the move away from common to more private property rights among the Orma is not coincidental. Economic growth created a situation in which new property rights were necessary, were desired by some factions, and were more affordably enforceable than they had previously been. Since the 1960s, the Orma, like many other pastoralists in Africa, have faced increasing overgrazing. Overgrazing could be reduced by altering

property rights. However, the various groups involved did not agree on what rights to adopt. The disagreement was largely driven by the commercial producers' desire to protect their gains. And as the Orma were fighting over property rights, the central government of Kenya was getting closer and closer. Those who had most contact with the government were in a favored position to use the new institutions to their advantage. The costs of enforcing more exclusive control of pastoral lands would previously not have been paid for by the economic savings of the new property rights. Once the costs of enforcement could be at least partially shifted to the central government, however, the new rights became more economically attractive to some interest groups. The presence of a large population of ethnic Somali probably did not dramatically alter the situation's final outcome, but it may have considerably forced the issue, so that lingering ideological resistance to a solution costly to the nomads was more easily overcome. Thus, by 1985, most Orma agreed that it was legitimate for the state to use force against their own members: the chief commonly used his police to arrest encroachers on the restricted grazing, Orma and Somali encroachers alike, and the vast majority of the settled Orma (63 percent of the population) considered this policy appropriate.

The Orma case should be instructive for many other parts of the developing world. The issue of who pays for the enforcement of new rights is especially important in understanding changing property rights in developing economies. The central bureaucracies of developing nations are reaching deeper into the remote areas. As they do so, forms of property rights that could not be economically enforced locally may become economical because enforcement is subsidized by the central state, as is the case for the Orma. But the changing economics of enforcement implies nothing about the effect on economic performance of new property rights, about their ecological soundness, or about their equity. In such circumstances, economic growth may well create certain windfalls, not only economic ones but also political windfalls in the form of privileged access to the central state. This being the case, those with better access may be able to manipulate the enforcement agencies to their own ends, thus creating new property rights favorable to them.

## notes

*Acknowledgments.* We wish to thank Lee Alston, Yoram Barzel, Victor Goldberg, Robert Higgs, Gary Miller, Rodney Smith, Michael Taylor, and several anonymous reviewers for kindly reading and commenting upon earlier drafts of this article. The article was also improved by comments received at the conference "Changing Rights in Property and Problems of Pastoral Development," held in Manchester, England, and at seminar presentations at the University of Arizona and the University of Chicago. Jean Ensminger also wishes to thank the following institutions for generous research support during the two periods of fieldwork upon which the article is based (July 1978 to February 1981 and April 1987 to December 1987): Fulbright-Hays, the Ford Foundation, the National Science Foundation (BNS-7904273), the Rockefeller Foundation, and the National Institutes of Health (SSP 5 R01 HD213427 DBS). Finally, the National Museums of Kenya and the Institute of Development Studies at the University of Nairobi provided much appreciated institutional support during the two field stays in Kenya.

<sup>1</sup>By economic growth we mean growth in the total output of a society, regardless of the distribution.

<sup>2</sup>Some might argue that many of the changes we describe in this article may in fact have been driven by population pressure rather than by economic growth. Indeed, population pressure can induce many of the changes in property rights that we note here, and for many of the same intermediate reasons (increasing land value, for example). In this particular case, however, we feel that a strong argument can be made that economic growth in itself accounts for much of the change. The 1980 human population for the Galole Orma area under study was approximately 2232, while the 1987 population was approximately 2414, representing an increase of only 8.2 percent over seven years. Population growth was greater than this, however, and resulted in a net emigration to nearby large towns. For our purposes, the livestock population is actually the more significant variable, and this population actually declined over the period (by approximately 24 percent) because of the severe drought of the mid-1980s.

<sup>3</sup>By institutions we mean here "the rules of the game in a society or, more formally, . . . the humanly devised constraints that shape human interaction" (North 1990:2).

<sup>4</sup>Typically, economists and political scientists consider institutional change to be a two-stage process, for they assume, usually implicitly, that people will automatically want those institutions which ensure the

greatest economic return (see, for example, Gilligan, Marshall, and Weingast 1989). We modify the approach to allow alternative distributional preferences, in order to be more consistent with empirical reality. By so doing we greatly broaden the potential range of analysis to which this approach may be applied.

<sup>5</sup>The new institutional economics as practiced by economic historians should be of particular interest to anthropologists (see the 1989 symposium issue of the *Journal of Institutional and Theoretical Economics* [Furubotn and Richter 1989]; Eggertsson 1990; Higgs 1987, 1989; Libecap 1989; and North 1981, 1990). Among the new institutionalists, the economic historians are the most akin to anthropologists: they focus, for example, on the processes of institutional change and development, and many are sensitive to the importance of ideology and the political process.

<sup>6</sup>For further discussion of the similarities and differences between the neo-Marxists' positions and positions similar to ours, see Bates 1983:134–147, Levi 1988:185–204, North 1986, Przeworski 1985, and Roemer 1982.

<sup>7</sup>There are of course exceptions, the most obvious being Jon Elster (see Elster 1985).

<sup>8</sup>Our position here is extremely similar to that of Skocpol, who puts it as follows:

Marxists may be right to argue that classes and class tensions are always present in industrial societies, but the political expression of class interests and conflicts is never automatic or economically determined. It depends on the capacities classes have for achieving consciousness, organization, and representation. Directly or indirectly, the structures and activities of states profoundly condition such class capacities. Thus, the classical wisdom of Marxian political sociology must be turned, if not on its head, then certainly on its side. [1985:25]

<sup>9</sup>For an especially clear discussion of transaction costs, see Goldberg (1989:ch. 1.3).

<sup>10</sup>The question of the economic desirability of various property rights is complex in this instance. Property rights that distribute rewards relatively equitably may in fact lead to higher output than those that do not, for the greater legitimacy afforded by a more equitable distribution may reduce "cheating" sufficiently that the overall performance is better. In other words, the savings in transaction costs (from reduced negotiating, monitoring, and enforcing) exceed the losses in underused potential.

<sup>11</sup>However, a growing body of literature suggests that people take fairness into account even in markets (see, for example, Kahneman, Knetsch, and Thaler 1986).

<sup>12</sup>Ironically, many of the boreholes eventually fell into disrepair, themselves the victims of a tragedy of the commons.

<sup>13</sup>This does not mean that enforcement must be unanimous or that all members of society must be equally involved. For example, there may be differences related to age, gender, wealth, economic strategy, and political status. Nevertheless, it is a characteristic of decentralized enforcement that the enforcing group be quite broadly distributed throughout the society.

<sup>14</sup>In no way are we suggesting that until recently pastoral societies were undifferentiated. We are arguing, however, that such differentiation has *increased* in the economic realm and that as a result there is less agreement regarding property rights.

<sup>15</sup>This study is based on research with the Galole population of Orma. The Orma are divided into three groups, from north to south: the Hirman, the Galole, and the Chaffa. For simplicity, hereafter we refer to the population in question merely as the "Orma."

<sup>16</sup>The bandits should not be confused with the political movement of the same name in the late 1960s.

## references cited

- Axelrod, Robert  
1984 *The Evolution of Cooperation*. New York: Basic Books.
- Bailey, F. G.  
1965 Decisions by Consensus in Councils and Committees with Special Reference to Village and Local Government in India. In *Political Systems and the Distribution of Power*. Max Gluckman and Fred Eggan, eds. pp. 1–20. New York: Frederick A. Praeger.
- Barzel, Yoram  
1989 *The Economic Analysis of Property Rights*. New York: Cambridge University Press.
- Bates, Robert  
1981 *Markets and States in Tropical Africa*. Berkeley: University of California Press.  
1983 *Essays on the Political Economy of Rural Africa*. New York: Cambridge University Press.  
1989 *Beyond the Miracle of the Market: The Political Economy of Agricultural Development in Kenya*. New York: Cambridge University Press.
- Behnke, Roy  
1985 *Open-Range Management and Property Rights in Pastoral Africa: A Case of Spontaneous Range Enclosure in South Darfur, Sudan*. Pastoral Development Network Paper no. 20f. London: Overseas Development Institute.
- Binger, Brian, and Elizabeth Hoffman  
1989 Institutional Persistence and Change: The Question of Efficiency. *Journal of Institutional and Theoretical Economics* 145:67–84.

- Cheung, Steven N. S.  
1973 The Fable of the Bees: An Economic Investigation. *Journal of Law and Economics* 16:11–34.
- Demsetz, H.  
1967 Toward a Theory of Property Rights. *American Economic Review* 57:347–359.
- Dennen, R. Taylor  
1976 Cattlemen's Associations and Property Rights in Land in the American West. *Explorations in Economic History* 13:423–436.
- Eggertsson, Thrainn  
1990 *Economic Behavior and Institutions*. New York: Cambridge University Press.
- Ellickson, Robert  
1986 Of Coase and Cattle: Dispute Resolution among Neighbors in Shasta County. *Stanford Law Review* 38:623–687.
- Elster, Jon  
1985 *Making Sense of Marx*. New York: Cambridge University Press.
- Ensminger, Jean  
1990 Co-Opting the Elders: The Political Economy of State Incorporation in Africa. *American Anthropologist* 92:662–675.  
1991 Structural Transformation and Its Consequences for Orma Women Pastoralists. In *Structural Adjustment and African Women Farmers*. Christina Gladwin, ed. pp. 281–300. Gainesville: University of Florida Press.  
In press *Making a Market: The Institutional Transformation of an African Society*. Cambridge: Cambridge University Press.
- Evans, Peter, Dietrich Rueschemeyer, and Theda Skocpol, eds.  
1985 *Bringing the State Back In*. New York: Cambridge University Press.
- Furubotn, E. G., and R. Richter, eds.  
1989 Symposium Issue. *Journal of Institutional and Theoretical Economics* 145:1–245.
- Gilligan, Thomas, William Marshall, and Barry Weingast  
1989 Regulation and the Theory of Legislative Choice: The Interstate Commerce Act of 1887. *Journal of Law and Economics* 32:35–61.
- Goldberg, Victor  
1981 Bridges over Contested Terrain: Exploring the Radical Account of the Employment Relation. In *Management under Differing Value Systems*. Gunter Dlugos and Klaus Weiermair, eds. pp. 375–403. Berlin: Walter de Gruyter.  
1989 *Readings in the Economics of Contract Law*. New York: Cambridge University Press.
- Gulliver, P. H.  
1972 *Family Herds*. London: Routledge and Kegan Paul.
- Hardin, Garrett  
1968 The Tragedy of the Commons. *Science* 162:1243–1248.
- Hardin, Garrett, and John Baden, eds.  
1977 *Managing the Commons*. San Francisco: W. H. Freeman.
- Hechter, Michael  
1987 *Principles of Group Solidarity*. Berkeley: University of California Press.
- Helland, Johan  
1980 Five Essays on the Study of Pastoralists and the Development of Pastoralism. *Sosialantropologisk Institutt, Universitetet I Bergen, Occasional Paper no. 20*. Bergen, Norway: Sosialantropologisk Institutt, Universitetet I Bergen.
- Higgs, Robert  
1987 *Crisis and Leviathan*. New York: Oxford University Press.  
1989 Organization, Ideology and the Free Rider Problem: Comment. *Journal of Institutional and Theoretical Economics* 145:232–237.
- Hinich, Melvin, and Michael Munger  
In press a Ideology and a General Theory of Politics. Ann Arbor: University of Michigan Press.  
In press b A Spatial Theory of Ideology. *Journal of Theoretical Politics*.
- Hitchcock, Robin  
1985 Water, Land and Livestock: The Evolution of Tenure and Administration Patterns in the Grazing Areas of Botswana. In *The Evolution of Modern Botswana*. Louis Picard, ed. pp. 84–121. London: Rex Collins.
- Hogg, Richard  
1990 The Politics of Changing Property Rights among Isiolo Boran Pastoralists in Northern Kenya. In *Property, Poverty and People: Changing Rights in Property and Problems of Pastoral Development*. P. T. W. Baxter with Richard Hogg, eds. pp. 20–31. Manchester, England: Department of Social Anthropology, University of Manchester.
- Johnson, Ronald, and Gary Libecap  
1982 Contracting Problems and Regulation: The Case of the Fishery. *American Economic Review* 72:1005–1022.
- Kahneman, Daniel, Jack Knetsch, and Richard Thaler  
1986 Perceptions of Unfairness: Constraints on Wealth Seeking. *American Economic Review* 76:728–741.



- Lewis, I. M.  
1961 *A Pastoral Democracy*. London: Oxford University Press.
- Levi, Margaret  
1988 *Of Rule and Revenue*. Berkeley: University of California Press.
- Libecap, Gary  
1989 *Contracting for Property Rights*. New York: Cambridge University Press.
- Lipton, Michael  
1977 *Why Poor People Stay Poor: A Study of Urban Bias in World Development*. London: Maurice Temple Smith.
- Lobo, Jeronimo  
1984 *The Itinerary of Jeronimo Lobo*. M. G. da Costa, ed. Donald M. Lockhart, trans. London: The Hakluyt Society.
- McCay, Bonnie, and James Acheson, eds.  
1987 *The Question of the Commons: The Culture and Ecology of Communal Resources*. Tucson: University of Arizona Press.
- Netting, Robert  
1982 *Territory, Property, and Tenure*. In *Behavioral and Social Science Research: A National Resource*. R. M. Adams, N. J. Smelser, and D. J. Treiman, eds. pp. 446–501. Washington, DC: National Academy Press.
- New, Charles  
1873 *Life, Wanderings, and Labours in Eastern Africa*. London: Hodder and Stoughton.
- North, Douglass C.  
1977 *Markets and Other Allocation Systems in History: The Challenge of Karl Polanyi*. *Journal of European Economic History* 6:703–716.  
1981 *Structure and Change in Economic History*. New York: W. W. Norton.  
1986 *Is It Worth Making Sense of Marx?* *Inquiry* 29:57–63.  
1990 *Institutions, Institutional Change and Economic Performance*. Cambridge: Cambridge University Press.
- North, Douglass, and Robert Paul Thomas  
1973 *The Rise of the Western World: A New Economic History*. Cambridge: Cambridge University Press.
- Ostrom, Elinor  
1990 *Governing the Commons: The Evolution of Institutions for Collective Action*. New York: Cambridge University Press.
- Peters, Pauline  
1984 *Struggles over Water, Struggles over Meaning: Cattle, Water and the State in Botswana*. *Africa* 54:29–49.  
1987 *Embedded Systems and Rooted Models: The Grazing Land of Botswana and the “Commons” Debate*. In *The Question of the Commons: The Culture and Ecology of Communal Resources*. Bonnie McCay and James Acheson, eds. pp. 171–194. Tucson: University of Arizona Press.
- Przeworski, Adam  
1985 *Marxism and Rational Choice*. *Politics and Society* 14(4):379–409.
- Riker, William  
1980 *Implications from the Disequilibrium of Majority Rule for the Study of Institutions*. *American Political Science Review* 74:432–446.  
1986 *The Art of Political Manipulation*. New Haven, CT: Yale University Press.
- Roemer, John  
1982 *A General Theory of Exploitation and Class*. Cambridge, MA: Harvard University Press.
- Schofield, Norman  
1986 *Anarchy, Altruism and Cooperation*. *Social Choice and Welfare* 2:207–219.
- Siegenthaler, Hansjorg  
1989 *Organization, Ideology and the Free Rider Problem*. *Journal of Institutional and Theoretical Economics* 145:215–231.
- Skocpol, Theda  
1985 *Bringing the State Back In: Strategies of Analysis in Current Research*. In *Bringing the State Back In*. Peter Evans, Dietrich Rueschemeyer, and Theda Skocpol, eds. pp. 3–37. New York: Cambridge University Press.
- Taylor, Michael  
1982 *Community, Anarchy and Liberty*. New York: Cambridge University Press.  
1987 *The Possibility of Cooperation*. New York: Cambridge University Press.
- Williamson, Oliver  
1985 *The Economic Institutions of Capitalism: Firms, Markets, Relational Contracting*. New York: Free Press.
- World Bank  
1989 *World Development Report 1989*. New York: Oxford University Press.

submitted 19 June 1990

revised version submitted 7 September 1990

accepted 21 December 1990